

OS-9 Newsletter®

Volume V Issue 6

Bellingham OS-9 Users Forum

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4th ANNUAL

PNW

CoCoFEST

This year's event was different from the previous three years by the fact that this PNW CoCoFEST was renamed the *PNW Community Computer Festival IV* sponsored by the Kitsap Computing Seniors. Therefore the focus was more generic. Lots of session on Telecommunications and Internet and "I know it's not a typewriter, but what is this thing called a computer".

Attendance was down slightly from last year. About 65 people attended and of those, maybe only 25-30 were CoCo/OS-9 types. The CoCo and OS-9 sessions were sparsely attended due to the fact that the generic sessions tended to attract even the CoCo people. There was a wonderful presentation by David Lockman from Vancouver, Wa. He etched his own 512K memory board. Very professional quality. (See page 3) Dave provided copies of the circuit board templates, complete set of directions and dry transfer spec sheets from the manufacture. He even included in each packet a free memory diagnostic disk. **WOW! BUT ONLY 3 PEOPLE ATTENDED HIS SESSION.** But then again, Scott Honaker's presentation on the future of computing drew a maximum attendance of more then 50 people.

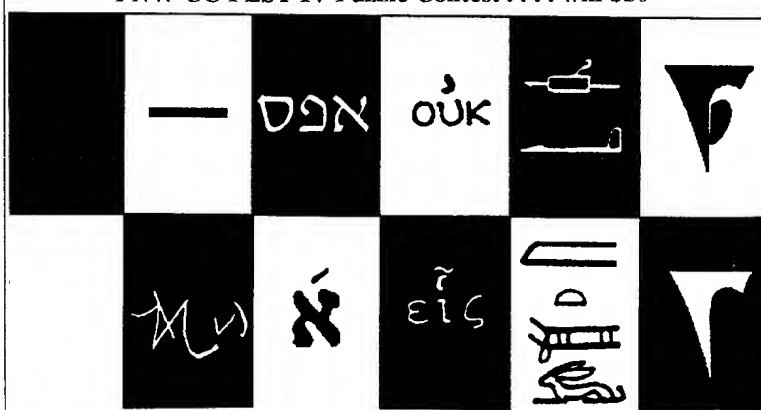
TSCNet from Bellevue did a couple of presentations on Bulletin Boards and Telecommunications in general. **Dennis Mott** and **John Schliep** did a presentation on FidoNET and I hope a little on the OCN (OS-9 Community Network). **Jessi Oberreuter** did a demonstration on the MM/1 (last year we had the Kix30 demonstration). **Bob van der Poel** did a presentation on "C Programming Concepts", which was well attended. **Terry Larway** did a presentation on "Printer Drivers for the CoCo". But by far the most popular presentation was "Guided Tour of Internet" presented on both Friday night and Saturday. The presenter was **John Fawcett** who does this kind of lecture for a living. He was very excellent with self explaining overhead projector slides that made "Gopher", the WEB, "Archie", "Veronica", "Jughead", FTP and Telenet all easy to understand.

The swap meet was listed on the program as the **Breakfast "GARAGE" Sale**. This was also sparse compared to last year. In the CoCo/OS-9 area there was **Rock Ridge Software** (David Lockman), **OS-9 Users Forum** (Rodger Alexander), **Permanent Crew Rest BBS** (John Schliep), **Bob van der Poel Software** (Bob

was there!) and **Small Grafx Etc.** (Terry Laraway). There was also another table selling their personal CoCo stuff real cheap but I didn't get a name. On the other side of the center isle were members of the Kitsap Computing Seniors. They had an additional seven "booths" set up selling everything from TI-99's to Apple II's, Tandy Model 2000 and older style XT type MS-DOS machines.

==Rodger Alexander==

PNW CC FEST IV Puzzle Contest . . . win \$50



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Q: What's the best way to tweak OS-9 for better Floppy performance... Is this something to do with Tandy mucking up on interleve???

==William Barnes==



A: With a floppy drive in good/ordinary condition, the supplied interleave is okay. To experiment with this, modpatch the interleave byte in the device descriptor or use the interleave option in the format command. The interleave is determined at the time of formatting. Somethings to try:

- 1 - Turn the disk verify off. Device descriptor.
- 2 - Up the sector allocation size. Device descriptor.
- 3 - Set the correct stepping rate. Device descriptor.

modpatch

```
l d0
* Disk write verify OFF
c 1a 0 1
* Disk sector allocation size to $20 = 8K
c 20 08 20
v
```

- 4 - For 720K floppies, use 4 or 8 sectors per cluster in 'format'.

- * stock format patch to 8 sectors per cluster

```
modpatch
l format
c 017e 01 08
v
```

- 5 - Make CMDS the first directory entry. Make sure directories are not fragmented (may happen if many files are in the root dir).
- 6 - Decrease the motor on delay time. Disk driver.
- 7 - Increase the motor off delay time. Disk driver.

```
modpatch
* cc3disk ed #11
l cc3disk
* motor on delay patch
c 4cd a0 28
* motor off delay patch
c 028 00 01
c 029 f0 a0
v
```

Change values to suit. While cutting the motor on time delay by four to \$28 works fine for my drives, experiment and proceed with caution as a motor on delay time too short can trash the disk.

== Gene Krenciglowa ==

Internet: CoCoLIST@Pucc.princeton.edu

Q: I have a Speck Sound Pak that I would like to use under OS-9 Level Two. What are the specific modifications required. I read somewhere that I need to replace the transistor, but with what? What other modifications are there?

==Devin Joseph Rubia==

(Q&A's Continued on page 9)

OS-9 Newsletter

Editor: Rodger Alexander

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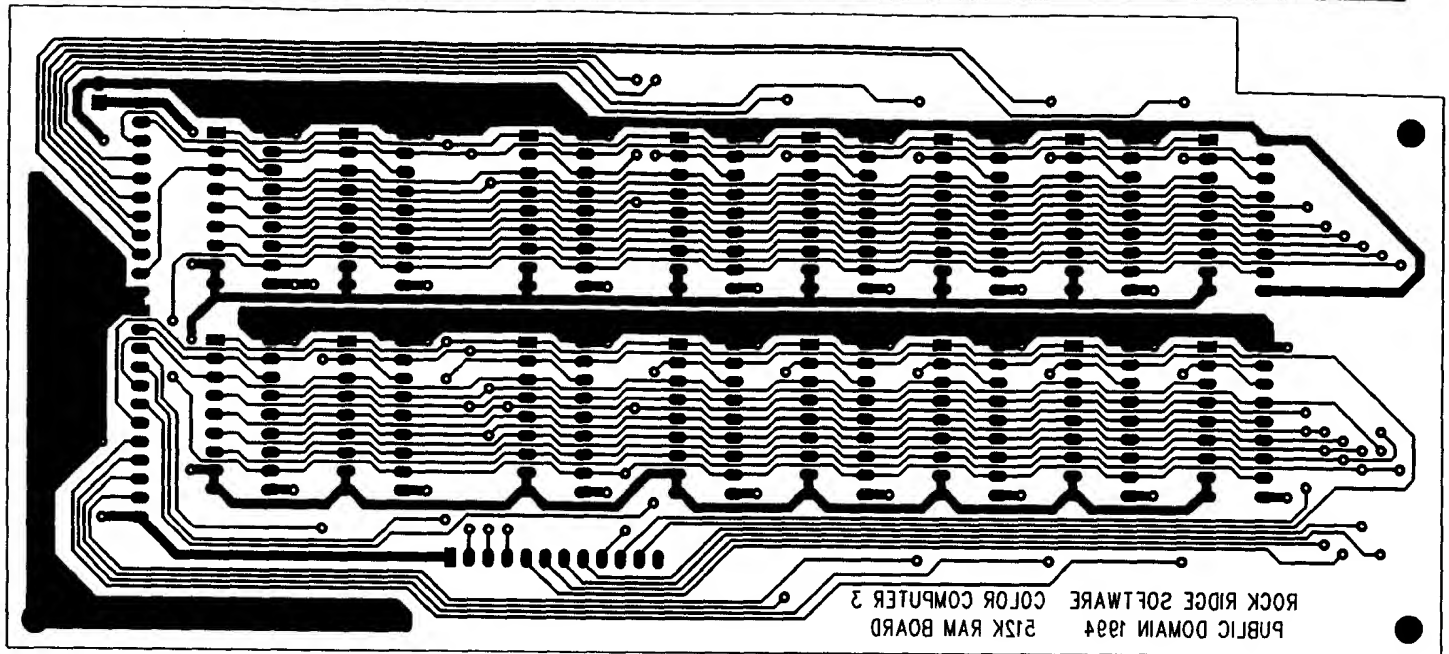
Submissions are welcomed in any format and can be mailed to the above address or sent via electronic mail to the editor, Rodger Alexander, on Delphi (UserID: SALZARD) or FidoNET (1:301/3401@fidonet.org) or Internet (ralexander@nikita.bham.wednet.edu). Unfortunately, we do not have funds to reimburse authors of selected articles. However, a complimentary copy of the *OS-9 Newsletter* containing your article will be mailed to you, PLUS the satisfaction that you will have the admiration and appreciation of all of our readers.

The *Bellingham OS-9 Users Forum* is a hobbyist club, organized for the purpose of providing information, services, products and events that support the OS-9 operating system for 6809/68xxx based computers. Our efforts are not intended to earn or generate any profit for the club or any of it's members.

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One of the reasons I bought my CoCo-3 was the price. Both hardware and software were being closed out at ridiculously low prices. The trouble was, the upgrade to 512K was still just as expensive as ever. Well, being a long-time hobbyist, and having access to a Printed Circuit Board design CAD system, I figured I would **MAKE MY OWN BOARD**. It would be single-sided, avoiding the expense of through-hole plating, and putting the 512K upgrade within almost anyone's reach.

PARTS LIST:

- 16 - 16Pin IC sockets (RS Cat.# 276-1998)
- 16 - Bypass capacitors (.047uf to .33uf disc ceramic)
- 16 - RAM chips (41256, 150ns or faster)
- 3 - 12 pin single-in-line headers (pins should be about one inch long on tenth-inch centers)
- 1 - 27pF disc ceramic capacitor (does not appear on the PCB design)
- 1 - 10uF to 220uF electrolytic or tantalum, 6 to 50 volts capacitor
- 1 - Circuit board, 4 x 8 inches, copper clad on one side only
- 1 - Bottle of etchant (RS Cat.# 276-1535)
- 1 - 1 sheet of TEC-200 plastic film

Misc: 0.043inch drill bits; Dremel tool or hand drill or drill press; 22 or 24 AWG tinned solid copper wire; low wattage soldering iron; rosin-core solder; household cleanser; needle-nose pliers; small diagonal cutters.

TO BEGIN:

The first thing is to transfer the circuit pattern (use actual size patterns in this article) to the TEC-200 plastic film by simply photocopying the pattern onto the TEC-200 film using any

"plain paper" copier. Clean the copper surface before proceeding to the next step using a mild abrasive cleanser. Cut the copied pattern on the film leaving no more than a half-inch border of clear film around the pattern. Put the film with the pattern side down onto the copper-clad board. Transfer the circuit pattern from the film directly onto the copper by pressing with a hot iron. The temperature of the iron should be set to the "cotton - linen" settings or 265F - 295F. It is preferable to use a thin cotton or muslin pressing cloth, paper towel, or napkin between the iron and the TEC-200 Film for the initial transfer, using moderate pressure. Check the instructions that come with the TEC-200 Film. Minor coating deficiencies after laminating may be repaired with a fine-point waterproof marking pen or resist pen.

ETCHING THE BOARD:

Use a plastic or glass tray **ONLY**. Place the board **image side up** into the etchant, and agitate the solution occasionally. Etchant works better when it is warm. You can heat up the bottle in some hot tap water. Check the board every few minutes to see how it is coming along. After all the unwanted copper has been etched away, rinse the board thoroughly in cool water to remove the etchant. Return the etchant to the bottle.

DRILLING THE BOARD:

Clean the TEC-200 Film "resist" off the board before you start. Inspect and remove any small bridges of copper between traces or pads using a sharp Xacto knife. Cut the board to size using a sheet metal shears or a hacksaw, etc.

(Continued on page 4)

(Continued from page 3)

Etc Your Own 512K Memory Board

The 0.043 drill bits are very tiny and break easily (that's why you need more than one). A small drill press is best, but a Dremel or Foreman can do a good job too. Go easy. Go slow, remember you have more of it than money, right? You may need to *gently* center punch hole locations with a punch, ice pick, or a twist of an Xacto knife.

SOLDERING ON THE PARTS:

Begin with the jumper wires. Tinned copper wire, 22 or 24 gauge, is just perfect. Bend the jumpers to size with pliers or a parts bender, push the wire ends through, and bend them over a little bit to hold them in place. After soldering the wires, trim the excess with your diagonal cutter.

Install the IC sockets next with the small notch at the pin 1 end facing the right direction (look at the assembly drawing). After the IC sockets, install the bypass capacitors. Add C1 (the big electrolytic).

Install the 12 pin connector headers from the **solder side** of the board. Carefully solder each pin in place. This is the hardest part.

The last thing to do is to add the 27pF capacitor to the solder side of the board. Trim the leads to about 1/4 inch each, and solder one lead to CN5, pin 7 (sixth pin from the bottom left corner of the board). Solder the other lead to the big ground plane next to CN5. Dress the part and its leads to eliminate the risk of shorting out the CAS line.

FINAL STEPS:

Before installing the RAM chips we need to make sure that there are no shorts or open circuit on your masterpiece. A close inspection first with a bright backlight and a magnifying glass may just save you a lot of cussin' later on. Use a multimeter or

continuity tester to make sure there are no shorts from power to ground. NOW install the RAM chips in their sockets. The CoCo uses CMOS RAM that are sensitive to discharges of static electricity. Use conductive, anti-static foam to store your RAM chips, and place your RAM expansion board on that foam when you are installing the chips. Touch a piece of grounded metal before you begin. Insert each RAM chip carefully into each socket. Make certain that all 16 legs go into the socket with pin 1 of the chip going into pin 1 of the socket. **Be careful not to bend the connector pins (headers) on the back of the board.**

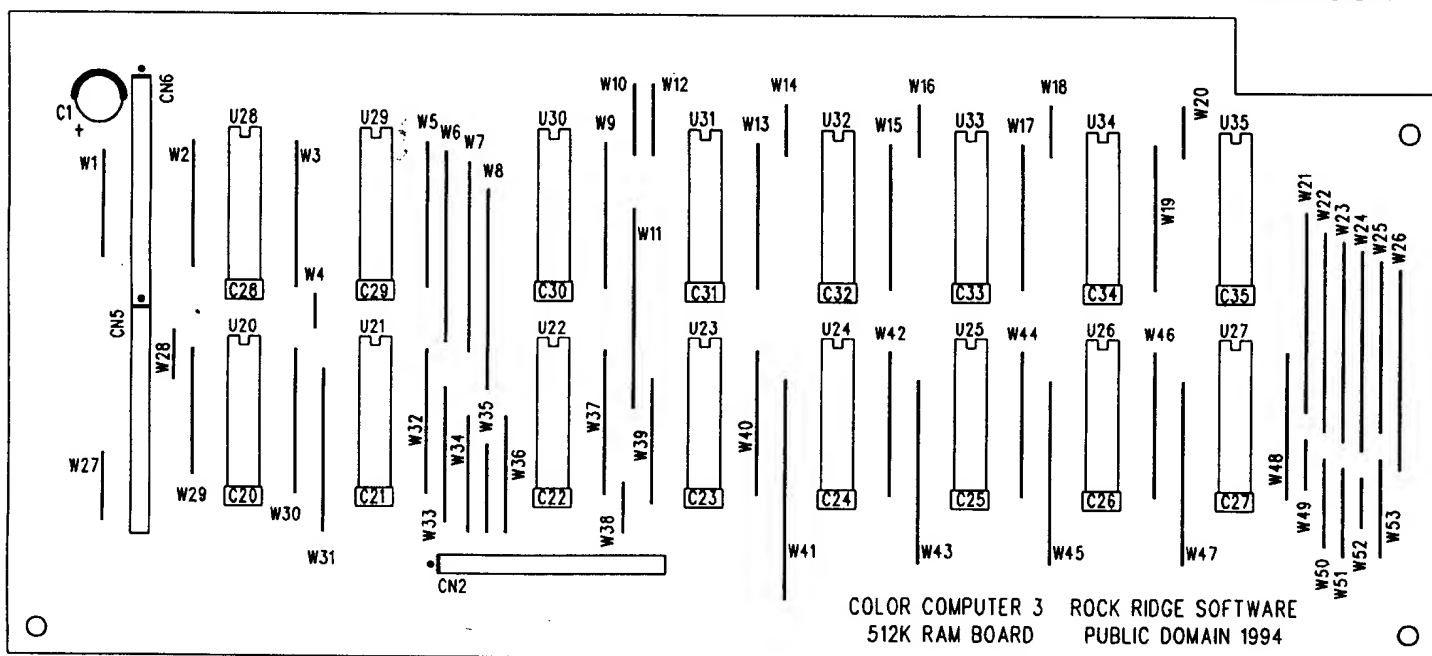
INSTALLATION:

Pull the power plug out of the wall and remove the CoCo-3's cover. Pull the four 4464 DRAMS near CN5 and CN6 on the CoCo motherboard. You will need to insulate the top of the RF modulator with electrical tape to keep it from shorting against the bottom of the RAM board. Next, clip out C65 and C66 from the motherboard, and **carefully** install the 512K upgrade board. Insert the long connector pins on the RAM board into the white sockets on the motherboard. **Gently** press down until the connectors are fully seated.

TESTING AND TROUBLESHOOTING:

Do not attach your disk controller or multipak yet. Plug in the computer and turn it on.... If the CoCo gods have been smiling down upon your endeavor, you will see the familiar green screen with the "Extended Color BASIC" version message and the OK prompt. Whew! You can now switch off and attach the disk controller. Power back up. Still okay? Great! Load and run a RAM test program (I will give you a copy for the cost of the disk and postage.) to see if any of those RAM chips are bad, or if you made any bad solder joints. Let this program run for a few hours, and check for overheating of the RAM chips, or the power supply transistor.

(Continued on page 5)



(Continued from page 4)

IF IT DIDN'T WORK. . . . My prototype didn't work right away. I found that a trace was "sort-of" open, and the RAS signal was not "stout" enough to please the RAM chips. It took an oscilloscope to find the problem, but only a little bitty piece of wire to fix it. If you can, use a 'scope or logic probe to verify that good, solid highs and lows are getting to the correct pins. You may find that you missed a solder bridge somewhere. Enlist a technically minded fellow hobbyist if you get stuck. The CoCo is all about sharing and mutual support! That's part of the fun!

ADDITIONAL RESOURCES:

I recommend Rodger Alexander's videotape "*HOW TO Hardware Upgrades for the Color Computer-3*" as a great guide to upgrading the CoCo. Also, if you have it, refer to the March 1989 issue of the Rainbow for a really good article on RAM upgrades.

If you have questions or want the complete set of instructions, or the PCB design file in PADS-Perform binary format or the HP Laser II print files on MS-DOS disk, or the RAM test program disk for the CoCo; call or write me. I will be able to provide laser prints and disks at cost plus postage.

==David Lockman==

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NitrOS9 Update

Version 1.20 will be out in July

JUNE 7: Wes Gale and Gale Force Enterprises is no longer involved with the NitrOS9 project. In the future, all inquiries, purchases or upgrades should be directed to:

Curtis Boyle or Bill Nobel
Mercury Graphics Corporation
1438 Fletcher Road
Saskatoon, SK. Canada S7M 5T2

Maybe put a **RE: NitrOS9** on the address as well so Bill or I can tell if it is regular work business or NitrOS9 related (our work is letting us use their address for correspondence, since one of us is bound to be there every weekday. Prevents letters from getting locked up for a couple of weeks if one of us is on vacation).

For dire emergencies, you can call us (by name) at work too, but don't do it too often, as our work doesn't want to pay us for doing support for a product that they have nothing to do with (except for printing our manuals at a good price). The number there is (306)-384-8000. In the evenings, you can call me (306)-384-4722 or Bill (306)-978-0834 at home.

We will have some distributors soon for the new Version 1.20 release, as well as our new upgrade/purchase policy, hopefully by the end of June, work schedules permitting. We were pretty busy after getting back from the Fest, and finally had time to print some manuals (V1.15/16) for backorders, so we haven't had too much time to do much with NitrOS9. We should get the manuals mailed out to individuals waiting for them by the end of the week, and then start doing some bug-hunting/last minute updates & the new manual after that.

==Curtis Boyle==
FidoNET;OS-9 echo

IBM Research Groups Create Way To Boost Disk-Drive Storage

International Business Machines Corp. (IBM) said it has devised a technique that could enable computer hard-disk drives to store 20 times more information by the end of the decade.

IBM said the advance comes from using new technology in the disk head, which "writes" information to the magnetic disk and "reads" it back. The disk head uses the "giant magnetoresistive" effect, a discovery in magnetism made six years ago. Using the disk head, called a spin-valve head, hard drives will be able to store about 10 billion bits of computer data per square inch, nearly 20 times the storage density of today's best drives.

The work was a joint venture between IBM's Almaden Research Center and its Storage Systems Division, both based in San Jose, Calif.

Internet: "CoCoLIST@pucc.Princeton.edu"

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a) the order was lost in the move (this applies to verbal and mail orders)

b) the order is in storage (this applies only to mail orders).

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No outstanding checks or money orders have been cashed. Individuals with questions about a specific check or money order sent to Burke & Burke should enquire via private email.

Burke & Burke regrets any inconvenience that this move has caused list subscribers.

==Chris Burke==

Internet: "burke@MDD.COMM.MOT.COM"

Bob van der Poel Software

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OS-9 Multimedia

Audio/Video Data Stream

MPEG is currently the most popular Audio/Video compression scheme. The MPEG bit stream includes much more than a sequence of bits that a decoder IC can transform directly into a composite TV signal. A MPEG bit stream includes separate blocks or packets of data for video and audio information.

The MPEG-1 standard defines a "pack" of data that is not of specific size, but that typically ranges from 1 to 4 Kbytes in size. A pack may include data that represents a portion of a video frame, one complete video frame, or an audio segment that corresponds to a sequence of video frames.

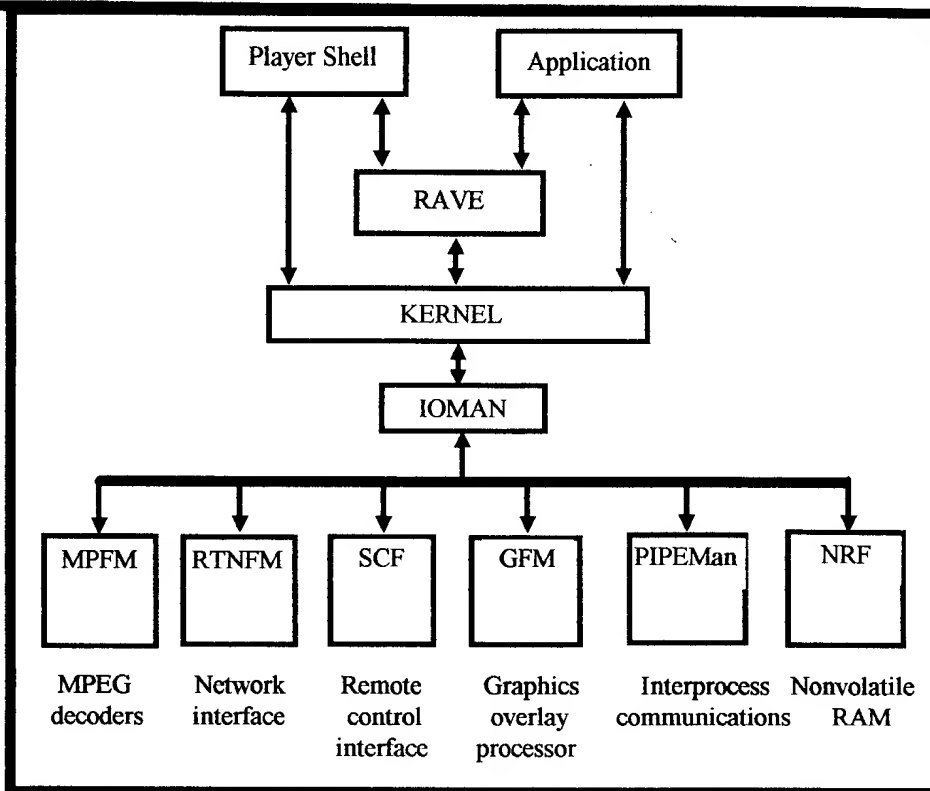
The MPEG-2 standard breaks the data stream into smaller 188-byte "packets". The use of constant packet sizes also improves the ability for the decoder to recover from transmission errors that do occur in wide-area networks or broadcast environments. An MPEG-2 bit stream would typically have several video packets for each audio packet.

The mechanism for directing and synchronizing MPEG video and audio is enabled by the header information found in each pack or packet of data. The header provides a program ID as well as a time stamp relative to the start of the program.

The digital **set-top boxes** for your home interactive cable TV system will likely work with data rates in the 1.5Mbps range. The trend in designing the boxes will be to use software executing on the CPU to perform as many functions as possible, thereby keeping cost reasonable for the consumer market. Real-time software on a Motorola 680xx class CPU can perform many of the data-movement, scheduling, and synchronization functions.

See figure 1 for an example of how the software and computer operate in a digital **set-top box**. The example shown is called a **Digital Audio/Video Interactive Decoder**, or **D.A.V.I.D.** for short. A DAVID-based decoder box looks much like any other computer with the exception of the MPEG decoder (not shown in example).

Look familiar? It should! DAVID includes the OS-9 or OS-9000 operating system together with a specialized set of system service modules which are optimized for digital video applications.



DAVID includes a SCF (sequential Character File Manager) that is used to communicate with remote control devices. A user control task, communicating via the SCF, could sense the rewind command from the user, and via PIPEMan, start the process to rewind the program. A network control task would use the bidirectional capabilities of the RTNFM and the network to send the command to the programming provider.

The GFM is also required to support user interaction. For example, one application task must control the user interface. The trend is to provide on-screen menus, much the way today's VCR's feature on-screen programming, rather than a simplistic key pad. Furthermore, as systems become more sophisticated, the GFM will be used to output graphics for interactive games.

DAVID also includes a NRF (Non-Volatile RAM File Manager) that allows the user to store favorite channel sequences and other personal information via the user interface.

With availability of DAVID, MPEG decoders and new network installation underway, all of the pieces are falling into place for interactive digital television.

Portions of this article are from a copyrighted article by Eric Miller, Director of Multimedia, Microware Systems Corporation.

6551 HACK

Hardware modification to Disto 4-n-1 Board

How many times have you said to yourself, "I wish my RS232 Pak would work correctly with my BBS." Don't you just hate it when you can't see modem responses? :(It's all because of the 6551 chip in your RS232 pak or Disto 4-in-1 board. It will not allow you to receive any information from the modem when there is no "Carrier detect", or "CD" for short. Bruce Isted saw this problem and decided to write a driver called "SACIA". It is a fully buffered driver that does one special thing: It will allow you to swap "DSR" <Data Set Ready> and "CD" on your cable. DSR is always on when you have a modem hooked up. What you would do with this driver is swap pin 6 <DSR> and pin 8 <CD> (An inverted cable) & SACIA will look at the DSR location for carrier. CD will always be on, so you can see modem responses. That's fine and dandy with the 232 pak, but with the 4 in 1 board from Disto -- Now that's a little different.

The 4 in 1

I took my boot disk over to Trix's house (John Farrar) and begged him to install my device drivers for the SC II & the 4 in 1 board. (He's the software dude, I'm the hardware dude--- together we make a good CoCo programmer. He installed my new drivers but left SACIA in place, he just changed the loaction of where to find the 6551 chip. It should work right?? Eaaaa! Wrong answer thanks for playing! Tony did something different to his 6551 than the one in the Deluxe RS-232 Pak. I fired up RiBBS and BOOM! Carrier Detected! DARN! Ok, I'll disconnect my modem, it will lose carrier then! Eaaaa! Sorry wrong answer thanks for playing! It still had carrier. Why is it doing this???

Look on page 5 of your Disto 4-in-1 board manual. In the middle of the page you see-- The CTS (Clear To Send) and DSR (Data Set Ready) input signals to the ACIA are always enabled. This means the ACIA device will always transmit, regardless of what is connected to it.

What Tony doesn't tell you is that the 6551 <The ACIA device> will ALWAYS transmit regardless of DSR. I sat down and thought to myself-- "I bet he just "Hard Wired" DSR on!" <Hard Wired means physically wired> As I came to find out after about 2 hours of trial and error voltage readings, Pin 16 is at 0 volts when CD is on, and at 5v when it is off. The same is true with Pin 17. When DSR is on, 0v is on Pin 17. When DSR is off, 5v is present on Pin 17. <I found this out with my Deluxe RS-232 Pak>.

pin	on	off	use
16	0v	5v	CD
17	0v	5v	DSR

DSR, Pin 17 on the 4 in 1 is soldered to ground. That means there is no voltage on that lead. Therefore DSR is ALWAYS on. That is why I ALWAYS detected carrier with the inverted

cable and SACIA. The 4-n-1 CAN'T read DSR from the modem, the hardware isn't connected from the modem to the 4-n-1's 6551. The Deluxe RS-232 DOES have the hardware, therefore an inverted cable can be used with it.

BE CAREFUL MODIFYING YOUR 4 n 1, SERIOUS DAMAGE CAN OCCUR IF YOU ARE NOT CAREFUL. IF YOU HAVE ANY PROBLEMS UNDERSTANDING THE MOD.----

==*DO-NOT-ATTEMPT-IT*==

Get help from someone if you can. Remember, electronics works on blue smoke, if you accidentally let the smoke out---- they wont work!

The Modification

Here is how to mod. the 4-in-1 for SACIA or any other "Inverted Cable" driver:

- 1) Disconnect all power and connections from the Disto SC II.
- 2) Unscrew the 4 screws that hold the cover on.
- 3) Remove the cover carefully.
- 4) Get a static wrist strap and put it on.
- 5) Place the wrist strap's ground to the SC II's CoCo edge card ground located at either end of the CoCo connector.
- 6) Carefully disconnect the 4-in-1 board.
- 7) Locate the 6551 lap chip.
- 8) Locate Pins 16 & 17 on the 6551 lap.
- 9) Flip the board to the BACK side.
- 10) Locate the trace going from Pin 16 to a Node on the circuit board.
(A Node looks like a little round solder blotch, the trace continues on the top side of the 4 in 1 board)
- 11) Cut the trace as close to pin 16 as possible with an "Exacto knife". Be SURE the trace is CUT. Take a continuity reading <if you can> to be sure.
- 12) Flip the board back over to the TOP side and cut Pin 7 off of the circuit board. CUT IT CLOSEST TO THE BOARD NOT THE CHIP.
- 13) On Top of the board, solder a piece of solid wire through the node that used to goto Pin 16.
- 14) Solder the other end of the wire to pin 17 of the 6551. NOT the pin on the board, the chip itself.
- 15) Flip the board over to the BACK side.
- 16) Solder another wire to Pin 16 of the 6551.
- 17) Solder the other end of the wire to ground. (I used the larger trace located closest to the pin, GOING UNDER the 6551 chip.)
- 18) Re-Install the modified 4 in 1. (Be careful to get all the connectors back in their correct positions)
- 19) Disconnect the static strap.
- 20) Place the cover back on the 4 in 1, be sure none of the mod. you made will short to ground.
- 21) Connect everything back together.
- 22) Pray.

(Continued on page 9)



(Continued from page 2)

A: I have not read the file Devin refers to but there is a better way to modify the pak. Don't change the transistor! Instead, Place a 470pf ceramic capacitor across R19. This will correct the pak's 6v power supply for 2MHz use. Low voltage produced from the E clock line is the cause for pak failure at 2MHz. The original transistor can easily work at 2MHz but the circuit can't. The capacitor provides compensation for the circuit's low pass roll off.

Of course, you still will need to change the pak clock rate by cutting the trace line to the card-edge pin 7 and applying a ground to pin 9 of the 74LS86, OR pull or cut pin 8 on the 74LS86 from the circuit board and solder a jumper from pin 8 on the circuit board to pin 10. Either method works satisfactorily.

==Robert Gault==
 ab282@detroit.freenet.org
 CoCoLIST@pucc.Princeton.edu

Q: How do I go about getting my CoCo-3 to boot up in an 80 column screen.

==Bill Johnson==

A: Here is a list of the locations in the OS9 coco window descriptors for some common changes, these are standard for all.. /TERMand /Wx.

location	what it does
002c	scrn width (hex 50 for 80 col.)
002d	scrn height (hex 18 for 24 lines.)
0030	type of scrn
0031	horizontal coordinate
0032	vertical coordinate
0033	foreground color
0035	background color
00356	border color

Modpatching the descriptor and cobbling a new disk is the simplest approach... Use could also use Debug, Ded, Qtip....whatever, will get you an 80 col/24 line term. Be sure you cobbler a new disk after making these changes

```
modpatch
l term
c 002c ?? 50
c 002d ?? 18
v ( don't forget this !!! )
```

Note: ?? is whatever # already at that location.

Leigh, The CoCo Klutz
 Internet: leighm@cruzio.com

(Continued from page 8)

6551 Hack

- 23) Turn on the CoCo, If you get an "OK" with a "Distro Cursor" boot OS9 and see if it works!! If your CoCo crashes when you turn it on, remove the cover to the SC II and check all your connections.

The Conclusion

And there you have it! Simple Huh?? CD is always on, and DSR is connected to the CD from the modem. SACIA will change it back to CD for you!! No need to even set RiBBS up for an inverted cable. No need for an inverted cable, it is all done by the Mod. and SACIA!!!

I hope you have no trouble with this mod. If you need any help, you can reach me at (615)-781-8679 DATA 2400 8n1, or through Fidonet at 1:116/41. Also you can send mail to me via TRIX on Delphi.

== Terry Trap ==
 Internet: "CoCoLIST@pucc.Princeton.edu"

Mug Puzzle Contest Rules

"The First Step for Charting the Unknown Possibilities of Existence"

Get together with some friends and try to figure this one out. It's not as simple as you might suspect, but it's not impossible either. The puzzle is on the front page of this issue of the OS-9 Newsletter. Read the Contest Rules below and send in your application. You could win \$50!

1. Your solution must be in writing.
2. If more than one correct solution is turned in, a random drawing will determine the winner.
3. Mail your solution to:

Puzzle
PO Box 657
Poulsbo, WA 98370

4. Each entry must contain:
 1. Your name, address and phone number
 2. The source of the symbols in the puzzle
 3. The meaning of the symbols
 4. The raw message
 5. The system of coding
 6. The meaning of the message
5. If the puzzle is not solved by May 15, 1995, the event is over. The explanation will be published in the June 1995 newsletter of the Kitsap Computing Seniors.
6. All decisions of the judges are final

(See Puzzle on the Cover Page)

OS-9 Telecommunications:**Why can't we go faster?**

This has been discussed before but no consensus has been reached. Speaking from practical experience, 9600 baud can be reached IF there are not a lot of background processes running under OS-9. 19,200 is possible under "RS-DOS" with well written machine language programs. The possibility of running a true 19,200 under OS-9 with a stock CoCo-3 is slight.

When I say running a true 19,200 I mean CPS that matches that kind of throughput, not just two machines that are hooked together via a modem that managed to do a handshake. If you are going to download only then you can likely manage 9600 if you run only your telecommunication program. If you are running a BBS that must run other processes while communicating then 4800 is a more likely top end.

If you are running StG-Net, OS9 BBS or RiBBS (Bulletin Board Software) then 4800 is definitely the best you will be able to manage with a stock CoCo3 while doing Net transfers. The Net transfers are bi-directional data exchange and the CoCo begins choking at anything over 4800 baud.

There have been many patches and hardware fixes to try to get around this. Using Powerboost, SACIA and special 65C51A chips. In my RS-232 port, I've been able to manage 9600 baud, but this is no way a stock CoCo. The main problem lies within the 6551 chip that is used. It has been pointed out that the problem is not with the stock CoCo and that is true. The 6551 does not implement hardware handshaking properly. This is what causes the problem we see with bi-directional transfer of data. In the end what will determine whether the CoCo chokes is: #1. How big a file you are trying to download; #2. Where you are trying to download it to, and #3. How many processes you are running in the background.

THE SOLUTION:

There have been many fixes aimed at trying to get around the "problem" with the 6551 but to date the only reliable one I've heard of is replacing the chip with a CMOS version that has the handshaking problem "fixed". This requires modification of the ACIA pak (new capacitors) and is not a "stock" board afterwards. Changes to the ACIA drivers help as well but does not eliminate the problems.

Somebody noted (on FidoNET) that the IBM PC is capable of telecommunications at 19,200. That may be true but they are not using 6551's, nor are they in a true multi-tasking environment while doing so.

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Editor's Note: But what are the specific fixes to the RS-232 Pak? What capacitor changes? Do we have to stick with the 6551? How about a new RS-232 Pak with an up to date U-Art chip? Dump the 6551!



CoCo/OS-9

Club Activities Report**Seattle 68xxxMUG**

The June meeting of the Seattle 68xxxMUG started at about 7:45 with a review of the upcoming PNW CoCoFEST by **Donald Zimmerman**. This year's FEST will be held at Port Orchard on June 24 - 25 at Marcus Whitman Junior High, the same location as last year. The FEST T-Shirts feature a picture of the "3 Musketeers" that you see on your CoCo-3 screen when you do a cold reset (CTL-ALT-Reset). Featured speakers for this year's event will include **Scott Honaker, Bob van der Poel, Dennis Mott, Jessi Obereuter, Rodger Alexander, John Schliep, Terry Laraway and David Lockman**. There will be an equally large number of speakers for the MS-DOS people attending the FEST. A special feature of this year's FEST is a Puzzle Contest. With your registration you receive a FEST Mug that has printed on it a special puzzle. Figure the puzzle out and win \$50.

The next portion of the meeting featured the finished "hack" to **Donald Zongker's** multipak. Rodger Alexander had cut it down to size at the previous meeting using a Dremel Tool and a cutting wheel, but the wiring to replace the cut off components was done at home. So Rodger and Donald hooked up the "hacked" multipak to the motherboard, plugged in the disk controller and the hard drive controller and turned on the power. Surprise, surprise. . . It worked! Even the special wiring to allow slot select between slots 4 and 3 functioned properly. Donald now has to mount everything securely into his tower case and add the I/O wiring and jacks. Hopefully he will have it done for the next meeting to show us.

The third topic of the meeting was a carryover from May's meeting when we were unable to get a good RS-232 connection between the CoCo and a Terminal. However this time it worked properly. Rodger logged on to his CoCo via a Freedom 110 terminal. Rodger went on to explain how unusual it was to log on and not have "super user" capability. This is a function of the *password* file that is called up by the *login* utility. Each authorized user is assigned a password, a user number, a priority rating and can even be assigned specific execution and data directories. Scott Honaker took over at that point explaining how the password and login files work to provide the excellent security environment that OS-9 provides.

Attendance has been up recently thanks to the reminder post cards send out by Donald Zimmerman. At least for the present, the postcards will continue to be mailed out until we run out of funds.

==Barbara Alexander==

MM/1 points of interest. . . at the **Chicago Fest**

Decided to sum-up some of the things I saw at Chicago that may be of interest to MM/1 owners. Didn't get around to all the booths like I had hoped to, but got to as many as I could. Several vendors were unable to attend the Fest, due to unforeseen last-minute circumstances, and were sorely missed. Of those products I did see, I took note of the the following (and bought most of them) items for the MM/1:

Color Systems:

KChess -- a fancy point-and-click interface for the GNU chess package, also includes GNU chess

Budgetware:

Trek -- K-Windows version of the classic Trek game with digitized sound effects. Requires BGFX.

Northern Xposure:

OSTerm 68K v2.2.0

Blackhawk Enterprises:

KTerm

System upgrade disk (Details below.)

There were also a number of VERY INTERESTING things in development some of which should be ready in time for the upcoming Atlanta Fest.

The **system upgrade** disk is available for \$15.00 from Blackhawk, which contains the following versions of the modules. I've left out some of the descriptors in the interest of brevity. This is a great price, and I highly recommend that everybody purchase the upgrade and get current editions of all the modules. (No, I don't work for Blackhawk, nor am I getting any kickback!)

Blackhawk Enterprises

PO Box 10552 (405)234-2347

Enid, OK 73706-0552

<u>Module</u>	<u>Vers</u>	<u>Module</u>	<u>Vers</u>	<u>Module</u>	<u>Vers</u>
Kernel, Init, Clock					
/kernel/kernel	83	/kernel/init_3meg	20	/kernel/sysgo	5
/kernel/tk68901	7	/kernel/rtdcs1287	5		
Sequential Character File Manager					
/scf/scf	31				
/scf/sc68070	14	/scf/t0			
/scf/scf68901	30	/scf/t1		/scf/t2	
/scf/sc68681	32	/scf/t3		/scf/t4	
/scf/scp68230	7	/scf/p		/scf/p1	
/scf/null	1	/scf/nil	3		
Window					
/win/windio	52	/win/keydrv	46	/win/snddrv	3
/win/msdrv	8	/win/stdfonts		/win/wcf	30
Pipe					
/pipe/pipeman	35	/pipe/pipe	2		
Random block File Manager					
/rbf/rbf	79	/rbf/rbvccs	12	/rbf/scsi_mmld	25
/rbf/h0		/rbf/dd.h0			
/rbf/rb37c65	6	/rbfmm1.d0		/rbf/scsi_mmld	25
/rbf/ram	15	/rbf/r0	14		
PC File Manager					
/pcf/pcf	24	/pcf/hpc0		/pcf/pc0	

==Colin McKay==
Northern Xposure

Washington State BBS List

COLUMBIA HTS. BBS

-- Longview/Kelso --
RiBBS (FidoNET)
(206) 425-5804

DATA WAREHOUSE BBS

-- Spokane --
RiBBS (FidoNET)
(509) 325-6787

BARBEQUED RIBBS

-- Bellingham --
PC-Board (PC-Net) - CoCo Conference #5
(206) 676-5787

OS-9 TACOMA BBS

-- Tacoma --
RiBBS (FidoNET)
(206) 566-8857

ULTIMATE EXPERIENCE BBS

-- Anacortes --
RiBBS (MaxNET)
(206) 299-0491

Bellingham OS-9 Users Forum

OS-9 and the Color Computer \$7

Tutorial and Hardware Hacker's Manual.
Includes 5-1/4 Disk of (360K) of upgrade software

Color Computer Video Library \$10

Fixing the MultiPak IRQ * Installing Floppy Drives
Installing 512K Memory * Installing B&B Hard Drive

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